

New York State Department of Transportation

Red Flag NB2358W008

By: Alex Abreu

Flag Date: May 01, 2023

Superseding Information:

No Flags Superseded

Structure Information

BIN: 1065318

Feature Carried: 278I278IX2M23027

Feature Crossed: 6TH AVENUE

Orientation: 8 - NORTHWEST

Region: 11 - NEW YORK CITY

County: KINGS

Political Unit: City of NEW YORK

Approximate Year Built: 1962

Posted Load Matches Inventory : Yes

Bridge Load Posting (Tons) : Not Posted for Load

Primary Owner: New York State Department of Transportation

Primary Maintenance Responsibility: 12 - State - Subcontracted to another Party

Typical or Main Span Type: 3 - Steel, 02 - Stringer/Multi-Beam or Girder

This Bridge is not a Ramp

Number of Spans: 322

Verbal Notification Information

Person Notified: Heinz Joachim, P.E.

Date: May 01, 2023 10:11:00 AM

Of: NYSDOT Region 11

Signature Information

Signature: Alex Abreu, P.E. 099761-1

Date: May 03, 2023

Reviewed By: Robert Kemp

Date: May 04, 2023

Attachments: 9

Flagged Elements

Parent Element	Element	Total Quantity	Unit
Span Number : 30			
	113 - Steel Stringer	119	ft

Flagged Condition Description

This Red Flag No. NB2358W008 is NEW.

Location: Span 30, Stringer S1 at Pier 30 above the sidewalk at the intersection of 65th Street WB roadway and 4th Avenue.

Description:

The end of Stringer S1 exhibits severe section loss in the stringer web with 0.12" to 0.18" remaining thickness measured (RTM), resulting in approximately 55% to 70% section loss, for the full web height along the connection angle for 4"-6" wide. The overall shear web section loss is approximately 80%. The lower web above the bottom flange exhibits a corrosion hole for 1"-9"H and up to 10"L adjacent to the connection angle with section loss surrounding the hole for 9"L x 4"H with 0.18" RTM, resulting in approximately 55% section loss. (Photos #6 and #7) The bottom flange exhibits severe section loss with 1/8" to 3/16" RTM for 18"L for the full flange width at both leg, resulting in approximately 63% to 75% section loss, with two corrosion holes at the left edge of the bottom flange for 2" diameter and 3"L x 2"W and one corrosion at the right edge of the bottom flange for 1" diameter (Photo #9). Both connection angles exhibit heavy corrosion with 20%-30% section loss for the full height of the connection angles (Photo #8). (refer to Yellow Flag Condition Sketch #2 for more details).

This is a newly flagged condition.

Notes:

1. Adjacent Girder G1 exhibits vertical cracks in the fillet at the bottom of both connection angles for 13" long x 3/16" wide at the left connection angle and 8-1/2" long x 1/8" wide at the right connection angle. This condition was reissued as Yellow Flag NB2358W009 during this biennial inspection.
2. The flagged stringer is a segmental stringer which is framed into the pier capbeam at one end and framed into intermediate diaphragm #2 (ID2) at the other end of the stringer (ID2 is framed into the web of Girder G1). (Photo #4) The Stringer S1 connection to ID2 exhibits no significant defects. Also, the stringer end at Pier 30 is located above Column C1.
3. Due to the access restrictions from cables in place for the ongoing contractor platform installation in Span 30, the stringer location was access with 30ft bucket truck parked on the sidewalk at the intersection of 65th Street and 4th Avenue. (Photo #5)
4. The centerline of the stringer appears to be in line with the face of the curb on top of the deck.
5. The initial inspection date for the above flagged stringer was 4/27/2023. The condition of the stringer was discussed in depth between the inspection team and QC which lead to further internal discussion regarding load rating. The stringer location was revisited on 5/1/2023 to obtain further information for load rating analysis which resulted in the issuing of the red flag. There were no changes in the conditions at the flagged stringer between both inspection dates 4/27/2023 and 5/1/2023.
6. The previous 2022 SILO CS3 Mini Report documented the above girder location with the following defect: The right side of Stringer S1 web exhibits a 6"W x Full Height area with 3/16"D section loss and flaking of steel along the connection angle. The connection angle exhibits heavy corrosion with 30% section loss for full height. The left side of Stringer S1 web exhibits a 6"W x Full Height area with 3/16"D section loss with flaking of steel along the connection angle. The connection angle exhibits heavy corrosion with 50% section loss for full height.

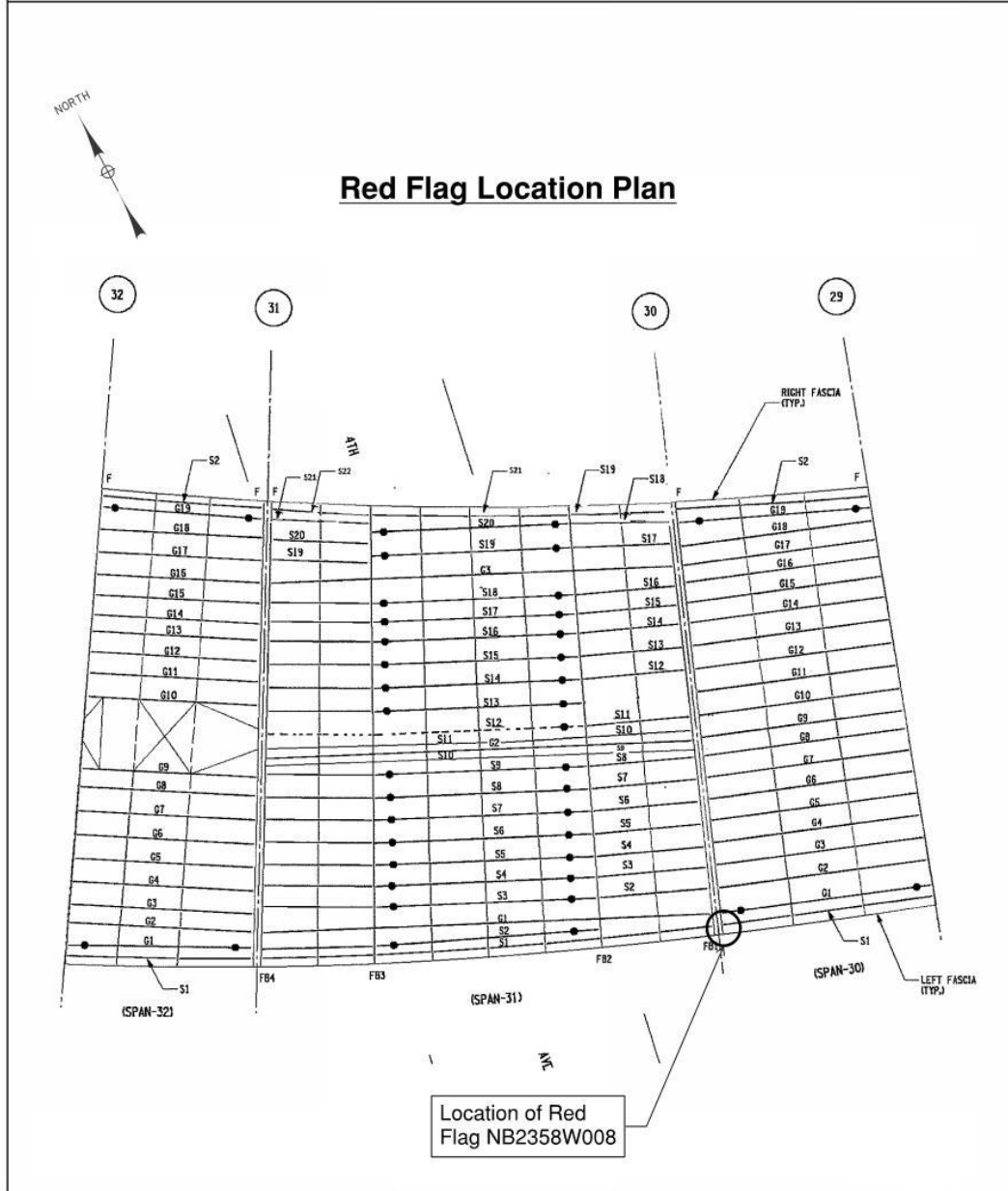
Flag PhotographsPhoto Number: **1**Photo Filename: **23_Flag Location Plan.jpg**Gowanus Expressway
2023 Biennial Inspection - Field SketchBIN: 1065318Team: AA/TSDate: 05/01/2023Span: 30Location: Stringer S1 at Pier 30**Attachment Description: Flag Location Plan**

Photo Number: 2

Photo Filename: 23_Span 30_Stringer S1_Connection Detail.jpg

Gowanus Expressway
2023 Biennial Inspection - Field Sketch

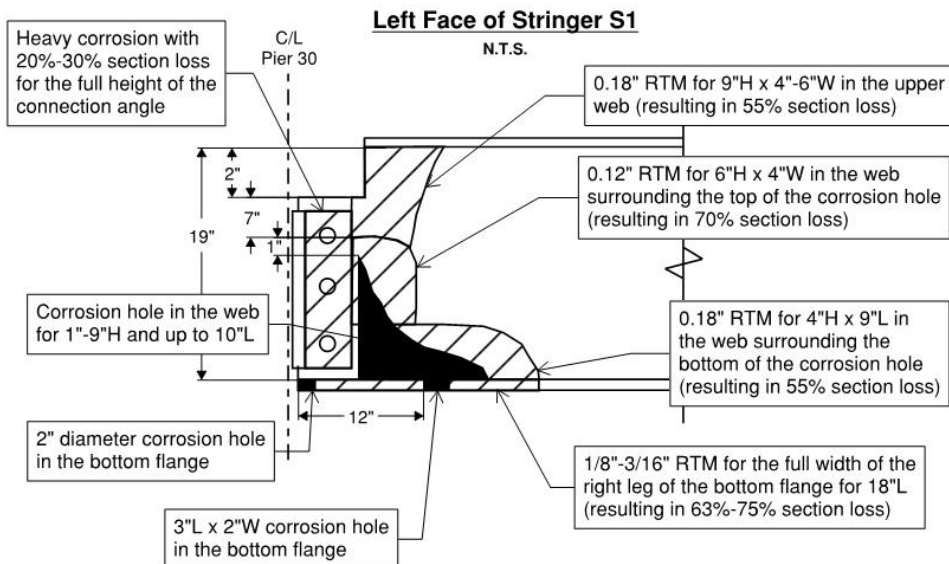
BIN: 1065318

Team: AA/TS

Date: 05/01/2023

Span: 30

Location: Stringer S1 at Pier 30

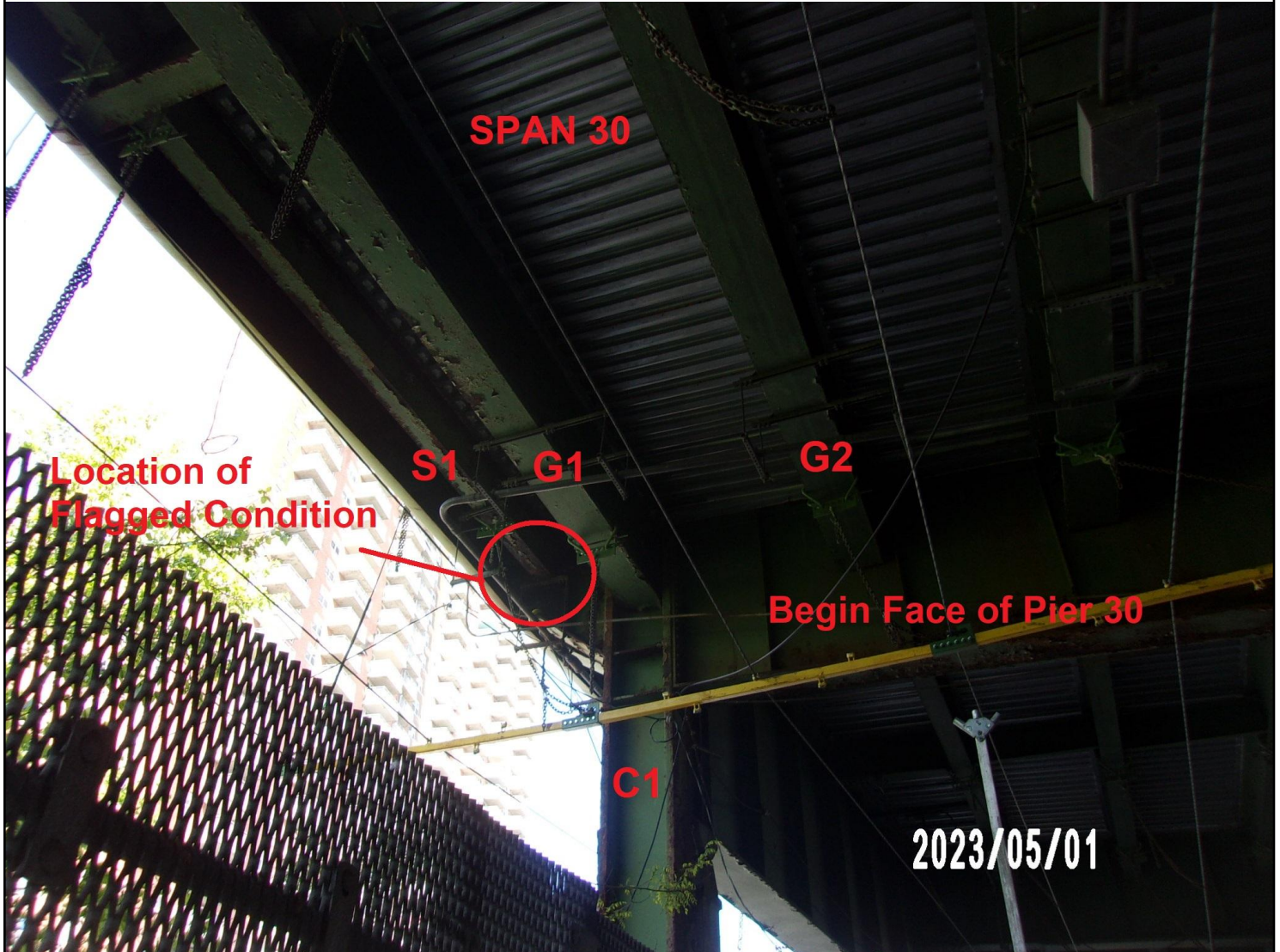
**Section Loss Calculations:**As-built shear web area = $0.40" \times 17" = 6.8 \text{ in}^2$ Shear web section loss area = $0" \times 9"H + 0.12" \times 1"H + 0.18" \times 7"H = 1.38 \text{ in}^2$
(calculated at the highest point of the corrosion hole for 9"H below the top cope)Overall shear web section loss = $(6.8 \text{ in}^2 - 1.38 \text{ in}^2) / 6.8 \text{ in}^2 = 80\%$ **Notes:**

- The right side bottom flange exhibits similar section loss as shown above with 1" diameter corrosion hole in the bottom flange approximately 15" from the stringer end.
- The as-built field measured stringer web thickness is approximately 0.40".
- The as-built field measured stringer flange thickness is approximately 0.50".
- The stringer is a segmental stringer framed into the pier capbeam at one end and framed into ID2 at the other end of the stringer.

Attachment Description: Flag Condition Sketch

Photo Number: 3

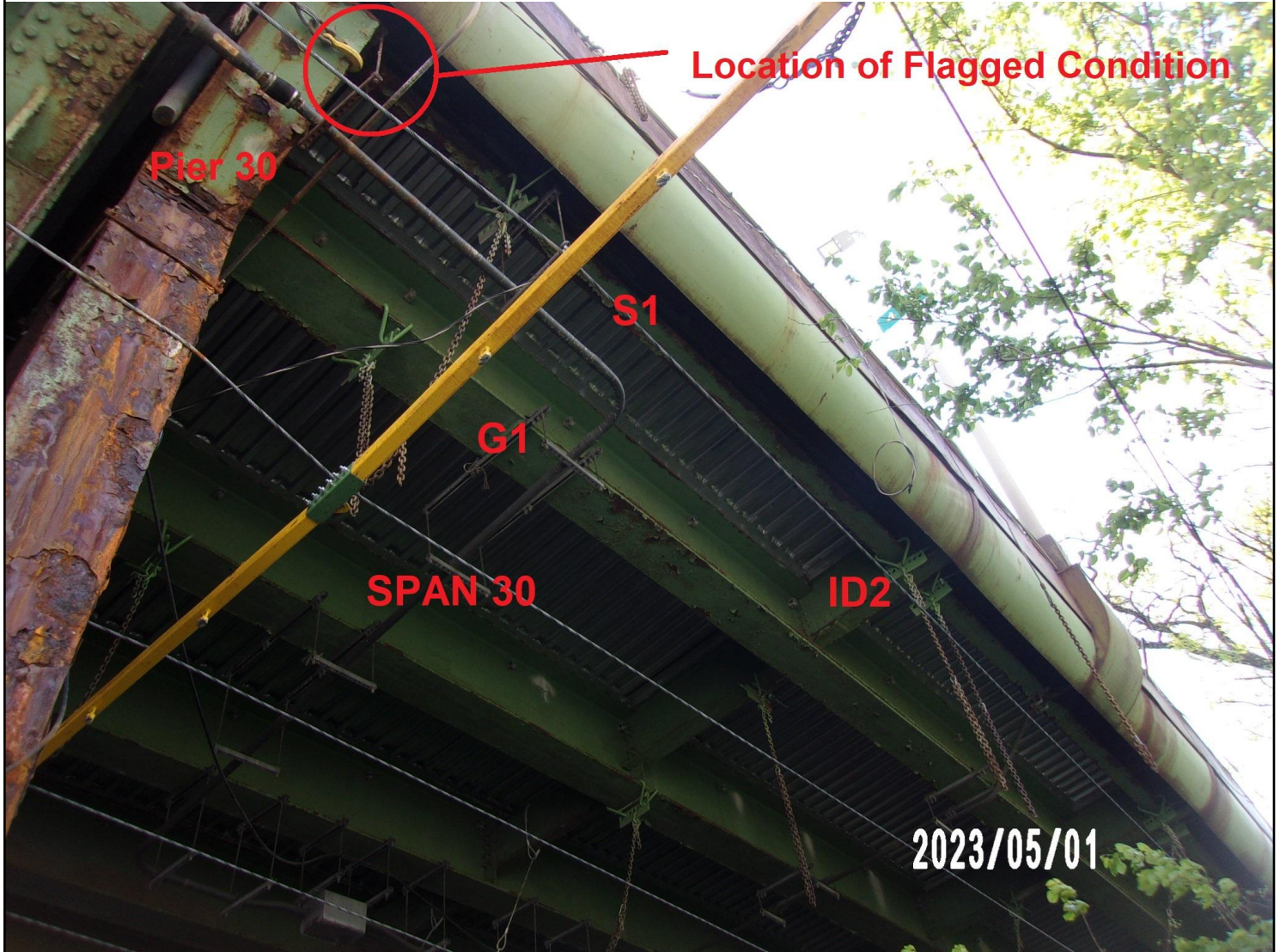
Photo Filename: 23_113_6741.JPG



Attachment Description: General view of the flagged condition at Stringer S1 in Span 30 at Pier 30. Looking End.

Photo Number: 4

Photo Filename: 23_113_6740.JPG



Attachment Description: General view of the flagged condition at the segmental Stringer S1 in Span 30 at Pier 30. Looking Begin and Right.

Photo Number: 5

Photo Filename: 23_113_6737.JPG



Attachment Description: The left side of Stringer S1 in Span 30 at Pier 30. The flagged condition at the stringer is located above Column C1 and the sidewalk at the intersection of 65th Street and 4th Avenue. Also, there were access restrictions for the stringer due to the cables in place for the ongoing contractor platform installation in Span 30. Looking Right.

Photo Number: 6

Photo Filename: 23_113_6665.JPG



Attachment Description: The left face of Stringer S1 in Span 30 at Pier 30. The stringer web exhibits 55% to 70% section loss for the full web height along the connection angle. The lower web exhibits a corrosion hole for 1"-9"H and up to 10"L adjacent to the connection angle with 55% section loss surrounding the hole. Looking Right.

Photo Number: 7

Photo Filename: 23_113_6666.JPG



Attachment Description: The right face of Stringer S1 in Span 30 at Pier 30. The stringer web exhibits 55% to 70% section loss for the full web height along the connection angle. The lower web exhibits a corrosion hole for 1"-9"H and up to 10"L adjacent to the connection angle with 55% section loss surrounding the hole. Looking Left.

Photo Number: 8

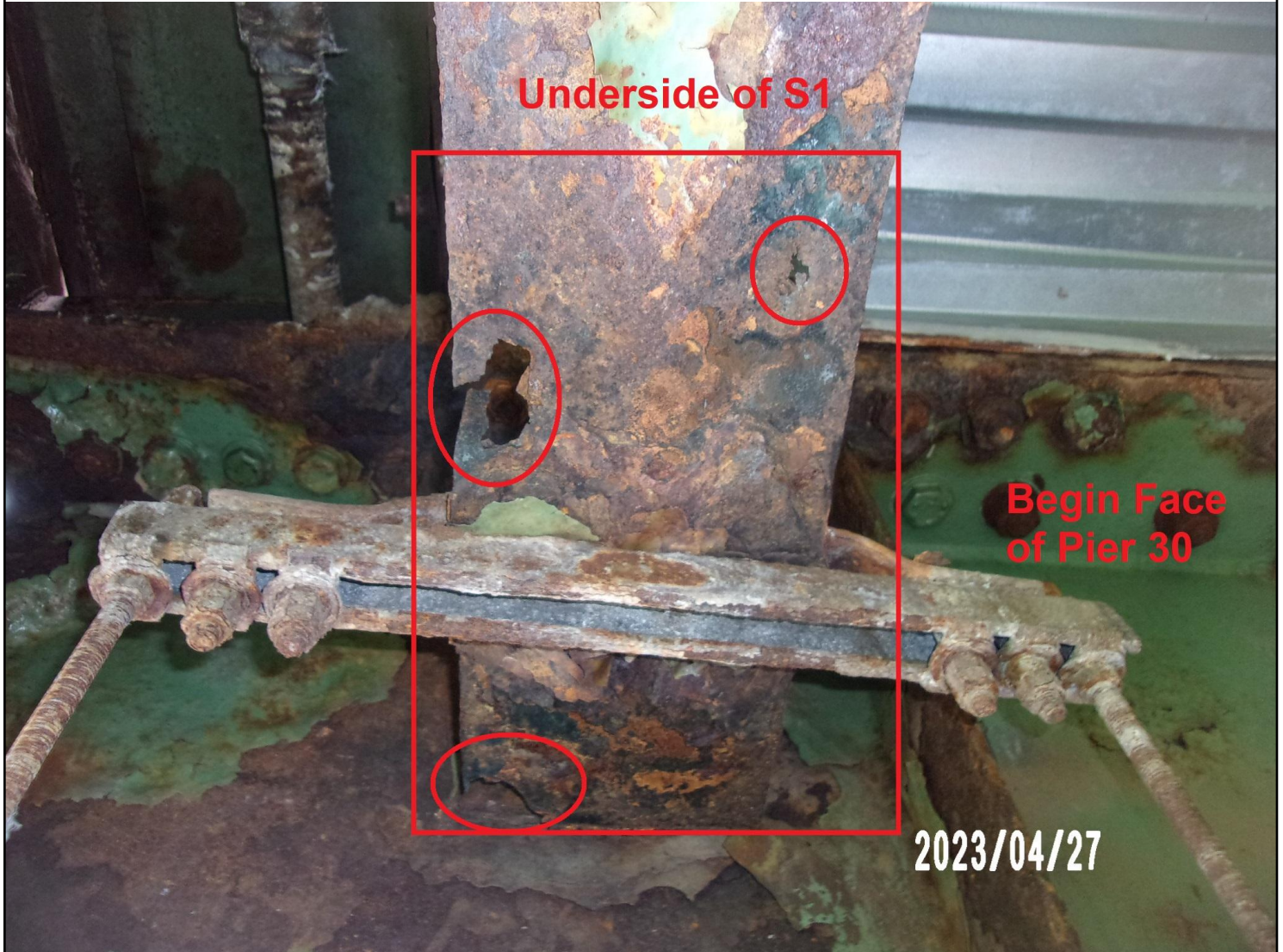
Photo Filename: 23_113_6662.JPG



Attachment Description: The right face of Stringer S1 in Span 30 at Pier 30. The connection angle exhibits heavy corrosion with 20%-30% section loss for the full height of the connection angle. Looking End and Left.

Photo Number: 9

Photo Filename: 23_113_6658.JPG



Attachment Description: The underside of Stringer S1 in Span 30 at Pier 30. The bottom flange exhibits 55% to 75% section loss for the full flange width at both legs with two corrosion holes at the left edge of the bottom flange for 2" diameter and 3"L x 2"W and one corrosion at the right edge of the bottom flange for 1" diameter. Looking End.